BITS computing&communications news

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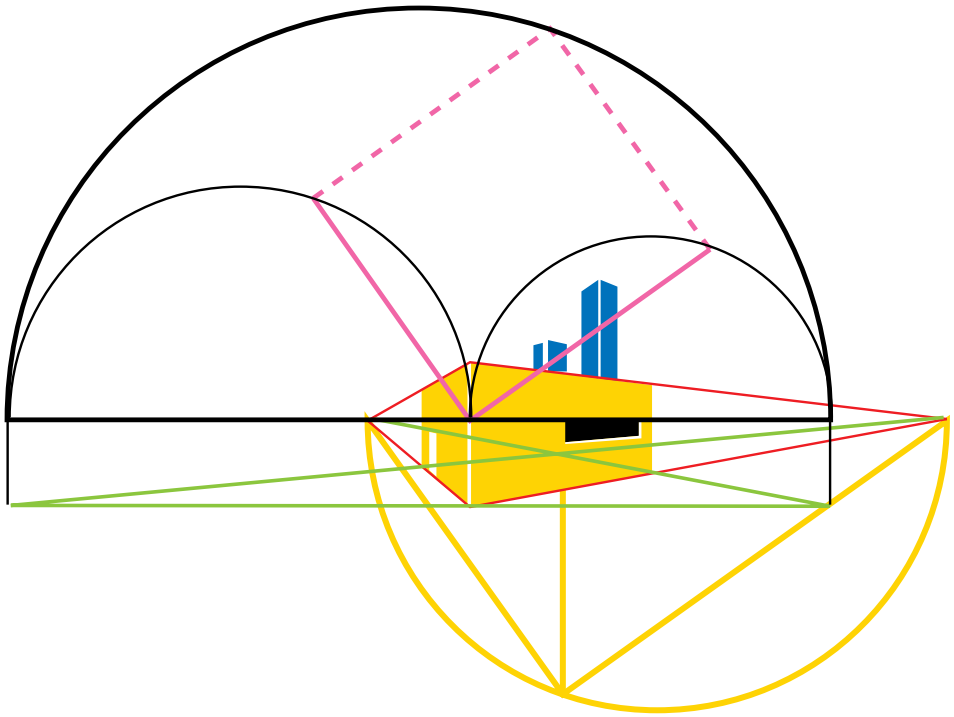
COMPUTING, INFORMATION, AND COMMUNICATIONS (CIC) DIVISION • LOS ALAMOS NATIONAL LABORATORY

Just as Alice walked into the looking-glass, Project Alice lets you walk into a photograph. By coupling a virtual reality engine with the mathematics of photogrammetry (including new developments made by LANL researchers), Project Alice lets you turn a single ordinary photograph into an environment you can enter via virtual reality. The image shown here is a geometric reconstruction of an orthographic image with two vanishing points. Recent developments include the ability to model complex shapes such as people, which gives the system the potential for personnel tracking and identification. Project Alice was developed with LDRD funding by CIC-3 researchers John Zahrt, George Papcun, Naama Rubin, Randy Childers, and Igor Zlokarnik.



Inside this issue

CIC Customer Service Center . . . . . .(505) 665-4444 or cichelp@lanl.gov

Integrated Computing Network (ICN)
- Consulting:
  - Centralized scientific and engineering computing .....consult@lanl.gov or 7-5746
  - Lab-wide administrative and business systems.....labwide@lanl.gov or 7-9444
- Passwords (required for access to ICN) .....validate@lanl.gov or 5-1805

Central Computing Facility (CCF) 7-4584

Advanced Computing Laboratory (ACL) 5-4530

Desktop Support Center (DSC) 7-4357 (7-HELP)
- For PC questions: PC-help@lanl.gov or 7-9372
- For Macintosh questions: Mac-help@lanl.gov or 5-1361
- For UNIX questions: UNIX-help@lanl.gov or 5-2220
- For groups with CIC-2 support contracts: 5-2220

Telephone Services Center 7-3400
(includes voice mail)

Computer training
- Lab-wide systems support training.....7-9444
- Computer/workstation training 7-9399
- Personal computer training 7-9071
- Microcomputer support facility seminars.....7-4357
  (Macintosh/IBM software, lending library)

Network Operations Center (NOC).....noc@lanl.gov or 7-7423
(after hours call 7-4585)

List of Forms

Consulting for Lab-Wide Systems

This article is the first in a series about the different consulting services available through the Customer Service Group (CIC-6). The focus here will be on consulting for the Lab-Wide Systems. Future articles will address ICN Consulting, Desktop Consulting, Customer Service Center, and other CIC-6 teams.

Lab-Wide Systems play a crucial role in the way the Laboratory conducts many of its administrative operations. For example, Lab-Wide Systems are used to record employee attendance, track equipment inventories, index research documents, authorize equipment purchases, and approve employee travel. (For a complete listing of all 29 systems, see the article Lab-Wide Information Systems Descriptions in this issue.) Currently, these systems reside in four different computing environments: VAX, IBM, client-server, and Web. While the VAX and IBM machines still contain most of the Lab-Wide Systems, more and more systems are becoming available through the client-server and Web environments which provide a Graphical User Interface (GUI). For example, GUI is now used with the following Lab-wide systems: Data Warehouse, Travel, Time and Effort, Employee Development, and Purchase Card. This shift in computing environments has made Lab-Wide Systems available to a larger population of users and has increased the number of calls received by the consultants.

These changes have created a situation in which a growing number of people need to use systems that operate within an increasingly diverse environment. Unfortunately, at present there are only three full-time Lab-Wide Consultants, which is the same size staff that was available two years ago when the number of Lab-Wide Systems users was much smaller and the computing environment less diverse. Consequently, users may not get the help they need immediately. However, as a Lab-Wide Systems user there are some steps you can take to improve the situation.

When to Call Other Consultants

Before you call for consulting, try to make sure you're calling the right consultant. Lab-Wide Consultants deal specifically with problems associated with the use of Lab-Wide Systems. They are not the best people to call for questions outside that area of expertise. Below is a list of some other consulting teams and their areas of expertise. (See the inside front cover of BITS for phone numbers and e-mail addresses.)

- The ICN Consulting Office provides assistance for users of the ICN and its associated services including compute servers, file storage, compilers, debuggers, editors, workstation software, and UNIX commands.

- The Desktop Consultants offer support for questions related to operating systems and other software commonly used on Macs, PCs, and UNIX desktop computers.

- The Customer Service Center offers basic information on various computing and communications services. They can also connect you with a more specialized consultant when necessary.

What to Do Before You Call

When you call for assistance, a Lab-Wide Consultant may ask you several questions to try to get as much information about the problem as possible. Please be ready to answer questions like the following:

- Which Lab-Wide system are you using? (TE, TR, EI, etc.)

Lab-Wide Consultants (L to R) Lorena Salazar, Mary Billen, and Vonetta Pompeo

• What were you doing when the problem occurred? (Entering, validating, approving attendance, retrieving trip data, changing a mail stop, etc.)

• What's on your screen now? (Is the screen complete, but the cursor doesn't move? Did the system log you off? etc.)

It's also helpful to print any error messages, or if this is not possible, write down the content of the error message. By providing the consultants with adequate information, you make the problem easier to solve.

When to Call

The Lab-Wide Consultants are on duty Monday through Friday from 8:00 a.m. to noon and 1:00 p.m. to 5:00 p.m. You may contact them by phone or e-mail (665-4444 option 2 or labwide@lanl.gov).

Access Security Awareness Briefings for Lab-Wide Systems Users

The Lab-Wide consultants distribute ICN Access Authorization Packets and conduct Access Security Awareness briefings for uncleared employees and non-Lab employees who need access to the Lab-Wide Systems. Briefings are held weekly at the CTI conference room (TA-3, Bldg. 200, Rm. 116) and last for one hour. Call the CIC-6 group secretary at 667-9153 if you need to schedule a briefing. You will be asked to sign an Access Agreement form that will be notarized at the briefing. Bring some form of photo ID other than your badge (e.g., drivers license or military ID). All required forms should be completed and signed before attending the briefing. Please be sure you have obtained all required signatures.

On-line Resources for Using Lab-Wide Systems

For those of you who like to access information through the Web, check out the Web sites listed below.

Documentation for Lab-Wide Systems:
http://iosun.lanl.gov:2001/htmls/infoSys/icn/labwide/lab-wide.html

Laboratory wide Schedule of Machine Availability:
http://iosun.lanl.gov:7001/cic13/ibmsch.html

Training schedule:
http://www.lanl.gov:8010/computer-information/cic6/team-page.html

Machine requirements (IA Standards):
http://iosun.lanl.gov:7001/cic13/businfo.html

LANL Online Forms Page:
http://iosun.lanl.gov:7000/devl/htmls/forms.html

Download and install Lab-Wide Systems:
http://ns-cic2.lanl.gov/esd/

ICN Password Office:
http://www.lanl.gov/services/passwords/

ICN Access Authorization Packet:
http://iosun.lanl.gov:7000/devl/htmls/cicforms.html

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Lab-Wide Consultant / Customer Service Group (CIC-6)

Lab-Wide Information Systems Descriptions

Below and on pages 4 and 5 is an alphabetized listing of all Lab-Wide Systems. Each entry contains the name of the system, a short description of the system, and the type of computing environment required to access the system. If you need additional information call 665-4444 option 2. (URLs are provided where Web access is available.)

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Lab-Wide Consultant / Customer Service group (CIC-6)

System	Description	Access
Account Control	Allows employees to add or update a default charge code, so the system will not ask for one every time the employee logs onto IA.	Log onto IA
Automated Chemical Inventory	Tracks all chemicals and gases purchased for use at the Laboratory from receipt through disposal.	Log onto IB
Affiliate Information	Provides agreement, arrangement, and payment information on Affiliates.	Log onto IA
Authors	Tracking and history system for Laboratory research documents. The database contains unclassified bibliographic citations.	Log onto IA
Budget Computing	Used to query historical operating funds.	Log onto IA
Capital Equipment	Records and reports budget activity on capital equipment.	Log onto IA
Data Warehouse	Allows access to financial, employee, and travel information through a graphical user interface. The system uses ad hoc and standard reporting capabilities. (http://datawarehouse.lanl.gov)	Client-server or Web
Document Request	Allows Laboratory employees to print Lab-Wide Systems documents through the Central Computing Facility (CCF). (http://iosun.lanl.gov:2001/htmls/infoSys/icn/labwide/labwide.html)	Log onto IA or use Web
Electronic Authorization	Determines access to Lab-Wide Systems. Managers use this system to review and assign Lab-Wide Systems authorities.	Log onto IA or IB
Employee Development	Tracks employee training. Laboratory employees may view course information and request enrollment in Lab-sponsored courses. Employees may also request a transcript that lists all the courses they have taken at the Laboratory.	Log onto IB or use client server
Employee Information	Displays employee salary, history, and directory information (i.e., personal, location, and address information for all Lab and non-Lab employees).	Log onto IB
Facilities Project Information/Work Order	A central project-tracking system designed to track work order costs and multiple construction projects from inception to completion.	Log onto IB

System	Description	Access
Financial Management Information	Provides managers, FIN personnel, and others with a way to keep track of the financial status of organizations or programs within their domain. Costs, allocations, and outstanding commitments information can be retrieved from the system, and reports can be generated.	Log onto IB
Hazardous Material Transfer Tracking	Provides electronic creation and approval of Hazardous Material Transfer Forms and Radioactive Material Transfer Forms.	Log onto IB
JetForm Filler	Used to fill out official Laboratory forms (travel, training, purchase requests, personnel action notices, etc.). (http://iosun.lanl.gov:7000/devl/htmls/forms.html)	Use the Web
Key/Core	A subsystem of the Employee Information System (EIS). It is used to track keys, cores, and padlocks fabricated by the Laboratory Lock Shop.	Log onto IB
Mail Channels	Contains source document numbers, names, and addresses of authorized recipients, document security levels, and special instructions and restrictions that pertain to transferring documents to authorized external personnel.	Log onto IA
Performance Appraisal	Allows managers to generate statistical reports (before 6/20/95) about outstanding appraisals. For current data, look on the Data Warehouse System or the Employee Information System.	Log onto IA
Personnel	Displays employee attendance (previous to 12/31/95), salary, history, and benefits information.	Log onto IA
Property Accounting, Inventory, and Reporting	Automates the process of property management and administration. It provides a central repository of property management information for active, excess, and retired property.	Log onto IB
Purchase Card	Allows on-line reconciliation, approval, and review of monthly statements of account.	Client-server

System	Description	Access
Purchasing, Accepting, Invoicing, and Disbursing	An accounts payable purchasing system which deals with all purchase requisitions hat become purchase orders. Once the purchase order is received, it is processed into this system, and an invoice is created to pay the vendor.	Log onto IB
Receiving/Procurement Inquiry	Displays information on purchase orders. Location and status of items received at the Laboratory can also be determined.	Log onto IA
Salary Review	Automates the process of distributing funds for salary increases.	Log onto IA
Secretarial/Contract Services	Provides the capability of requesting temporary secretarial services and/or contract services. The process for requesting these services is fully automated, from creating the request through notification and approval. Contract employees use this system to report their time.	Log onto IB
Signature Authority	Line managers use this system to assign authorities so their employees can purchase materials. This system is also used to authorize individuals to transport hazardous materials by interfacing with the Employee Development (ED) System to check the individual's training history.	Log onto IB
Stores	Provides on-line stock catalog searches. Orders for vendor and warehouse items can be placed and their status monitored.	Log onto IA
Time & Effort	Allows Laboratory employees to enter their own time and effort on-line. It also allows a designated timekeeper to enter time and effort for other employees. Line managers can approve time and effort on-line as well.	Log onto IB or use client-server
Travel	Allows employees to submit and approve travel expenses on-line. Because of Internal Revenue Service (IRS) regulations, the traveler must sign the summary sheet, attach the travel receipts to it, and send it to the Travel Office for storage.	Client-server

Authorities for Lab-Wide Systems

There are two different types of authorities associated with Lab-Wide Information Systems: Electronic Authority and Signature Authority. Electronic Authorities allow employees to use the on-line information systems. For example, authorized employees can use the Purchase Card system to reconcile their financial statements. See Table 1 for a listing of some commonly used Electronic Authorities. A Signature Authority gives employees certain privileges within the Laboratory. For example, employees must have Signature Authority before they can purchase capital equipment. See Table 2 for a listing of some commonly used Signature Authorities.

Table 1. Electronic Authorities

Authority Code	Lab-wide System	Electronic Authority
TRMAN	Travel	Create trips for members of your group
TRMGR	Travel	Create and approve trips for your group
TETMK	Time & Effort	Enter time and effort for members of your group
TEAPR	Time & Effort	Approve time and effort for your group
TEMRC	Time & Effort	Perform mass recodes for your group
PCCHA	Purchase Card	Reconcile purchase card statements
PCDAO	Purchase Card	Approve reconciled statement
SEATC	Secretarial/Contract	Enter attendance for contract employees
SEATA	Secretarial/Contract	Approve attendance for contract employees

Table 2. Signature Authorities

Authority Code	Signature Authority
SAADM	Assign signature authorities to people in your cost center
SASG	Access classified documents (Sigma Authority)
SAPR	Purchase supplies on the Lab-wide Stores system or by phone

An authority code represents either an Electronic Authority or a Signature Authority. Most authority codes are descriptive acronyms. The acronym TETMK stands for Time and Effort TiMeKeeper. Employees authorized to use the Electronic Authority code TETMK can enter time and effort data for all the employees in their group.

Assigning Electronic Authority in EAS

Line managers and program managers are responsible for assigning Electronic Authorities in the Electronic Authorization System (EAS). To assign Electronic Authorities, follow the instructions below.

1. Log onto IB.

2. Type EAAUS in the Menu option field on the System Selection Menu. This will bring up the Authority Services (AUS) screen (see Figure 1).

3. Press <Enter>.

4. Type the Z number or name of the person to whom you are assigning the authority.

5. Press <Enter>.

6. Press <Tab> to move the cursor to the UAD field and type A.

7. Press <Tab> once to skip the Job Code (JC) field. (This field will remain blank until you press <Enter> in step 13.)

8. Press <Tab> once to skip the Organization (Org) field. (This field will remain blank until you press <Enter> in step 13.)

9. Type the appropriate authority code in the Authority (Auth) field.

Note: For a list of authority codes, press the F4 key. Press the F3 key to return to the Authority Services Screen.

10. Press <Tab> to move the cursor to the Start Date field and type the current date (e.g., 08/05/1996).

11. Type an end date, no more than two years from the start date, in the End Date field.

12. Type either Y to make the authority reassignable or N to make it not reassignable (usually N) in the Reassign (Rsn) field. (If you leave this field blank, it will default to N when you press <Enter> in step 13.)

13. Press <Enter>. (The JC, Org, and Rsn codes will now appear.)

14. Type LO in the Menu Option field to log off.

Assigning Signature Authority in SAS

Line managers and program managers are responsible for assigning Signature Authorities in the Signature Authority System (SAS). To assign Signature Authorities, follow the instructions below.

1. Log onto IB.

2. Type SAMZN in the Menu option field on the System Selection screen. This will bring up the Maintain by Z Number (MZN) screen (see Figure 2).

3. Press <Enter>.

4. Press <Tab> to move the cursor to the Z number field and type the Z number or name of the person to whom you are assigning the authority.

5. Press <Enter>.

6. Press <Tab> to move the cursor to the UAD field and type A.

7. Type the appropriate authority code in the Code field.

Note: For a list of authority codes, press the F4 key. Press the F3 key to return to the Authority Services screen.

```
A    <Query
 FEA1100   Los Alamos National Laboratory Electronic Authorization    10/17/96
 Level 1                AUS : Authority Services                     17:31:59
 Assignee Z-no 096279                    Assigner Z-no 089332
 Assignee name ASSIGNEE                  Assigner name ASSIGNER
 Assignee JC:  10000  STAFF MEMBER       Assigner JC:  95992  GROUP LEADER
 Assignee OC:  8F0100 AGT-1              Assigner OC:  8H0600 CIC-6
 See all authorities for assignee _      See all assignments by assigner _
                                         See all assignments to assignee _
 UAD JC   Org  Auth   Authority Description     Start Date  End Date  Rsn
 --- ----- ------ ----- ------------------------ ---------- ---------- ---
  A  _____ ______ tetmk                         10/17/1996 10/17/1997 _
  _  _____ ______ _____                         __/__/____ __/__/____ _
  _  _____ ______ _____                         __/__/____ __/__/____ _
 All information displayed.
 FKey __ Menu Option _____ Command==> ____________________________________
 F1=Help F4=Prompt F5=Refresh F6=Menu F7=Page up F8=Page down F9=Bottom
```

Figure 1. The Authority Services Screen

```
A    <Query
 FSA2000    Los Alamos National Laboratory Signature Authority    10/17/96
 Level 1          MZN : Maintain by Z Number or Name              17:46:54
                                                                  Page  1
 Z number . . . . 089332      Name . . . . ASSIGNEE
 Auth code . . . . _____
 Employee type:   LAB         Job title:   COMP INFO SYS SPEC 2

      --------Authority---------  Cost    Start      End      Dollar   Training
 UAD  Code    Description        Center  Date       Date     Limit    Status
 ---  ------ -------------------- ------ ---------- ---------- -------- --------
  A   SAPR                       8H0600 09/30/1996 12/31/2099   5000   N/A
  _
  _
All information displayed.
 FKey __ Menu option _____ Command ===> ____________________________________
 F1=Help F4=Prompt F5=Refresh F6=Menu F7=Page up F8=Page down F9=Bottom
```

Figure 2. The Maintain by Z Number Screen

8. Press <Tab> to move the cursor to the Cost Center field and type the cost center code (6 digits).

9. Type the start date (e.g., 08/05/1996) in the Start Date field.

10. Type the end date in the End Date field.

11. Type a dollar amount, if appropriate, in the Dollar Limit field.

12. Press <Enter>.

13. Type LO in the Menu Option field to log off.

Authority Notifications

Expiration notices for both Electronic and Signature Authorities are delivered via e-mail 30 days before authorities expire. Notifications from EAS will tell you which Electronic Authority is expiring, when it will expire, who assigned it to you, and the organization code. Notifications from SAS will tell you which Signature Authority is expiring and when it will expire. You will receive another e-mail notification when the authority has expired.

How to List Your Current Electronic Authorities in EAS

1. Log onto IB.

2. Type EALAU in the Menu option field on the System Selection screen. This will bring up the List Authorities (LAU) screen.

3. Press <Enter>.

4. Type your Z number or name.

5. Press <Enter>. You will see a list of your current EAS authorities.

6. Type LO in the Menu Option field to log off.

How to List Your Expired Electronic Authorities in EAS

1. Log onto IB.

2. Type EAXAU in the Menu option field on the System Selection screen. This will bring up the Expired Authorities (XAU) screen.

3. Press <Enter>.

4. Type your Z number or name.

5. Press <Enter>. You will see a list of your authorities that have expired during the last 30 days.

6. Type LO in the Menu Option field to log off.

How to List Your Current Signature Authorities in SAS

1. Log onto IB.

2. Type SAQZN in the Menu option field on the System Selection screen. This will bring up the Query by Z Number screen.

3. Press <Enter>.

4. Press <Tab> once and type your Z number or name.

5. Press <Enter>. You will see your current Signature Authorities.

6. Press <Tab> to move the cursor to the first position left of the Code field and type E.

7. Press <Enter>. You will see information about the code and who assigned it to you.

8. Type LO in the Menu Option field to log off.

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External Computing Project

The mission of the External Computing project is to enable the Laboratory to continue as a leading national resource for high-performance computing. We accomplish our mission through continued customer support of CIC's innovative telecommunication and High Performance Computing (HPC) technologies and services. We focus our efforts primarily on external customers.

External Customers

The HPC resources at Los Alamos have been available to the DOE and DoD communities for more than a decade. In 1983, the Defense Special Weapons Agency (DSWA), formerly the Defense Nuclear Agency (DNA), chose to locate its supercomputing hardware at Los Alamos and thus began a symbiotic relationship with the Laboratory through a memorandum of understanding between DOE and DSWA. DSWA Headquarters has periodically reviewed the possible alternatives for its HPC requirements and has consistently chosen to continue its relationship with Los Alamos. In addition, other federal agencies and their contractors avail themselves of the HPC resources and environment at Los Alamos. Our ability to provide a cost-effective, quick time-to-solution capability for problems requiring these types of resources makes Los Alamos an attractive choice for these customers.

Supporting External Computing Customers

The External Computing project facilitates and supports external customer computing at Los Alamos in both the classified and unclassified environments. The External Computing team members serve as advocates and liaisons for external customers, ensuring their access to the collaborative resources and expertise available within CIC Division and the Laboratory as a whole.

Project Goals

The current goals of the External Computing project are as follows:

- Provide value-added, quality service and cost-effective, state-of-the-art computing and communication, resulting in complete customer satisfaction.
- Increase the CIC customer base, both external and internal.
- Provide a mechanism for the DoD community to contribute to and benefit from the Accelerated Strategic Computing Initiative (ASCI) software and hardware resources at Los Alamos.
- Maintain a cohesive, well-functioning, and supportive External Computing team.
- Keep external customers well-informed on all aspects of the services CIC provides.
- Be responsive to the needs and requests of external customers and be sensitive to their particular concerns. The External Computing team members serve as local advocates for external customers by ensuring that those customers have a voice in the decisions and directions that affect their ability to do work at Los Alamos.

The External Computing team believes that high-performance computing is essential to the success of most Laboratory programs. The team's efforts to increase the customer base of CIC Division in the area of high-performance computing will help to ensure the future viability of computing capabilities at Los Alamos.

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External Computing Project Leader

Team members (L to R) Steve Howard (CIC-4), Carlos Cabildo (CIC-4), Bill Ebanks (CIC-5), Lori Kelley (CIC-6), Ann Dingus (CIC-6), and Kathy Hirons (DD-CIC).

GNU Utilities Now Available Locally on /usr/lanl

GNU software utilities provide a valuable and free resource for people who use UNIX compatible systems. The GNU project was originally developed in the early 1980s as a way to offer a free software system for any interested UNIX user. Out of that effort emerged several useful utilities, many of which are in demand at LANL. To satisfy this demand, the Distributed Computing Environments Group (CIC-8) is providing access to the GNU utilities via a new directory now available on machine kufssa.

Kufssa is the home of the /usr/lanl directory, which many users already have mounted on their systems. To provide easy access to the GNU utilities, we've taken advantage of the existing file system by adding the GNU utilities to the /usr/lanl/gnu directory. This means that users who already have /usr/lanl mounted on their systems will only have to add the /usr/lanl/gnu/bin directory to their search paths. (For users who do not have /usr/lanl mounted, see the section How to Access GNU Utilities.)

All of the GNU utilities located on kufssa have already been compiled and are ready for immediate use. In the future, this file system will be implemented for desktop machines in the Secure network as well. (It is already available for the Secure Crays). The ideal goal behind this file system is to give users the ability to log onto any machine, either in the Open or in the Secure, and see the same utilities in the same location.

Architectures and Operating Systems Supported

Generally, the GNU utilities are supported on the architectures and operating systems listed below. However, not all GNU utilities are available on all of these operating systems—yet! (This is particularly true with regards to UNICOS). As new operating systems are released, we will provide GNU utilities that support them.

- Alpha (OSF1 v3.2 and v4.0),
- Cray-YMP (UNICOS 8.0.4.3 and 9.0.2),
- HP (HPUAX 9.05),
- IBM-RS6000 (AIX4.1.4),
- SGI (Irix6.2), and
- Sun4 (SunOS4.1.4 and Solaris2.5).

GNU Utilities Currently Available

autoconf	gawk	gzip	sed
binutils	gcc	less	tar
bison	gdb	m4	tcl
cvs	ghostscript	make	texinfo
dejagnu	ghostview	patch	tk
diffutils	gnuplot	perl	xemacs
emacs	grep	rcs	

How to Access GNU Utilities

Desktop Machines: If you already have the directory kufssa:/disks/lanl/<arch>/<os> mounted on your system, all you need to do is add /usr/lanl/gnu/bin to your search path and /usr/lanl/gnu/man to your manpath. (Note: Insert your specific architecture in place of <arch> and your operating system in place of <os>.)

If you don't have kufssa:/disks/lanl/<arch>/<os> mounted, either ask your system administrator to mount it as /usr/lanl or if you have super-user ability on your system, enter the following:

```
cd /usr
mkdir lanl
mount kufssa.lanl.gov:/disks/lanl/<arch>/<os> lanl
```

Then add /usr/lanl/gnu/bin to your search path and /usr/lanl/gnu/man to your manpath.

Crays (Open and Secure): Just add /usr/local/apps/gnu to your search path.

Questions or Comments?

If you have any questions or comments, or you would like to make a contribution to the GNU repository, please contact Erin Powers-McKay by phone or e-mail as shown below. To receive updates or post general questions, subscribe to the gnu-info mailing list by sending e-mail to listmanager@lanl.gov with subscribe gnu-info in the body of the message.

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Distributed Computing Environments Group (CIC-8)

Production Computing during the Christmas Holiday

On December 27 from 0700 (7:00 a.m.) to 1700 (5:00 p.m.) some CIC computing services may be unavailable or experience outages. Necessary electrical/mechanical maintenance and upgrades will take place during this time period. All precautions will be taken to limit the impact on service and to keep the outage as short as possible. Please plan accordingly. Up-to-date status will be available by calling (505) 667-2919 or (505) 667-1333. For more information call Jim Frybarger or Rick Riveria at (505) 667-4890.

The Current State of HTML

I've been coming to think that writing about HTML has certain dangers associated with it. You write something; it becomes a public, permanent record; things change; what you wrote is still out there, still the same, only wrong now.

Example 1: In a November 1995 BITS article, I wrote that it was bad to use the <BLINK> and <CENTER> tags because they were nonstandard. Well, since that writing, the <CENTER> tag has been incorporated into the World Wide Web Consortium (W3C) HTML 3.2 Reference Specification, plus it is more consistently rendered than the ALIGN=CENTER attribute when used with tags such as <P>, <H1-6>, <IMG>, or <TABLE>. Result: What I wrote about <CENTER> then is bad advice now (though <BLINK>, thankfully, is still non-standard).

Example 2: In an April 1996 BITS article, I wrote that the correct and standard way to set page backgrounds was to use the BACKGROUND="file" attribute of the <BODY> tag, not BGCOLOR="#xxxxxx". Since then, BGCOLOR has also been incorporated into the W3C HTML 3.2 Reference Specification, and it produces more consistent and reliable results than BACKGROUND for solid colors. Result (again): What seemed good advice then is bad advice now.

So much for "Taming the Wild Web," eh?

Given the inherent risk that what I write today may be wrong in a few months, I'd still like to announce that the W3C recently issued its HTML 3.2 Reference Specification (hereafter HTML 3.2) and that the Laboratory's Information Architecture (IA) Project has adjusted its HTML guidelines accordingly. Consequently, now seems an appropriate time to address some of the effects these changes have.

Note: This article is based on the November 5, 1996, version of the W3C Proposed Recommendation PR-html32-961105. Though there are likely to be some minor changes (primarily to improve access for the visually impaired, which is expected to be addressed through a new appendix), the document seems basically stable at this time and likely to become a W3C Recommendation in December or January.

What Is/Is Not Included

For starters, the markup I'm most frequently asked about, HTML Frames, is not part of HTML 3.2. Although various proposals have been floated and various implementations are in place, there is not yet a standard way to approach frames, and they are not recommended in the IA guidelines.

Also not included are table cell colors, marquees, <BLINK>, <EMBED>, or <SCRIPT>, though the IA is currently considering <SCRIPT> as provisional markup because of the wide industry support for JavaScript.

An important part of HTML 3.2, <FORM> based file uploads, is in the specification but does not yet have enough cross-vendor support to meet the IA's test. Hence, its use is not yet recommended, though this seems likely to change within the next few months.

The HTML 3.2 features that do meet the IA tests include

- background textures and colors
- text colors and sizes
- <TABLE> extensions
- <UL> and <OL> list controls
- <HR> horizontal rule controls
- <IMG> image alignment
- <DIV> document division controls
- Java <APPLET>s

All of the above have support from multiple browsers and meet the tests of the IA guidelines. Several are addressed below, and others will be addressed in upcoming BITS articles.

Note: Unless otherwise indicated, all of the markup discussed in this article meets the tests of IA-5815: Laboratory Standard HTML. As always, the IA philosophy is to adopt markup only when it's supported by multiple browsers and stable enough to have made it into a W3C draft or recommendation.

Invoking HTML 3.2

To begin with, any document using markup from HTML 3.2 should begin with the following (before the <HTML> start tag):

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2 Draft//EN">

This alerts browsers, validation tools, etc., about the type of HTML the document contains.

Note: The word "Draft" will be replaced by the word "Final" when the specification is fully ratified.

Background Textures and Colors

As noted in the introduction, HTML 3.2 offers two attributes in the <BODY> tag to specify textures and colors for Web page backgrounds:

<BODY BACKGROUND="filename"

BGCOLOR="#xxxxxx">

The BACKGROUND attribute specifies a graphics file (GIF or JPEG) that is tiled to create the background for the page. This is useful for creating textures, but it is not, in practice, as reliable or as fast as the BGCOLOR attribute for creating solid colors.

The BGCOLOR attribute specifies a solid color to use for the background. The color can be defined in standard RGB hexadecimal numbers or as one of the 16 colors from the Windows VGA palette. (See Table 1.)

Table 1. Standard Colors from HTML 3.2

BLACK = "#000000"	GREEN = "#008000"
SILVER = "#C0C0C0"	LIME = "#00FF00"
GRAY = "#808080"	OLIVE = "#808000"
WHITE = "#FFFFFF"	YELLOW = "#FFFF00"
MAROON = "#800000"	NAVY = "#000080"
RED = "#FF0000"	BLUE = "#0000FF"
PURPLE = "#800080"	TEAL = "#008080"
FUCHSIA = "#FF00FF"	AQUA = "#00FFFF"

Notes for Table 1:

1. The above colors can be set with either their names or their sRGB numbers. White, for example, could be set as either BGCOLOR=WHITE or BGCOLOR="#FFFFFF".

2. The above are not the only colors that are possible; they're just the 16 that were given names. Other colors can be specified through different sRGB numbers.

3. Like other HTML markup, neither the color names nor the sRGB numbers are case sensitive. BGCOLOR=WHITE is the same as bgcolor=white.

4. Do not rely on color as the only mechanism for communicating important information. Users can override your colors in their browser, substituting their own preferences for your design.

5. If you use colors, use them with care. Remember that not all people can see all colors and that different computer displays will render the colors differently. (See "Select Colors with Care" in the August 1996 BITS article, "Images on the Web: Some Tips.")

Text Colors and Sizes

There are several ways in HTML 3.2 to control the appearance of text. The first is a group of attributes for the <BODY> tag that can be used to change the color of text throughout the document. These attributes are as follows:

- TEXT="#xxxxxx" specifies the color for regular text.
- LINK="#xxxxxx" specifies the color for hypertext links.
- VLINK="#xxxxxx" specifies the color for visited links.
- ALINK="#xxxxxx" specifies the color for links that are being clicked on.

In each case, "#xxxxxx" can be either an sRGB hexadecimal number or one of the 16 colors named in Table 1.

The simplest way to change text size is with the <BASEFONT> tag, which allows you to set the text size for all the text following the tag. This is done with a SIZE attribute that is set to an integer from 1 (smallest) to 7 (largest). For example, <BASEFONT SIZE=3> sets the font to its default (normal) size. Note that <BASEFONT>, in most cases, does not affect the size of headings.

Another way to change the appearance of text is with the <FONT> tag, which can specify size and color for enclosed text. The <FONT> tag can have two attributes: SIZE and COLOR. SIZE can be either an absolute integer from 1 to 7 (as with <BASEFONT>) or a relative size (e.g., SIZE="+1" will increase the font size one unit from its current size, while SIZE="-3" will shrink it). COLOR, like above, can be either an sRGB hexadecimal number or one of the 16 colors in Table 1. Note that the <FONT> tag requires a closing </FONT>.

The Notes for Table 1 also apply to font sizes and colors.

Also note that another W3C Proposed Recommendation, Cascading Style Sheets, Level 1, proposes using style sheets to control attributes such as font sizes and colors for entire groups of similarly formatted documents. This seems a more promising, lower maintenance approach than setting colors and fonts one document at a time, but it does not yet have enough cross-vendor support to meet the IA tests.

<TABLE> Extensions

The number of table attributes that meet the IA-5815 tests have grown significantly since February 1996, when I wrote the BITS article "Tips on Writing HTML <TABLE>s." These attributes offer additional control over table layout.

Overall table layout can be adjusted through the following attributes for the <TABLE> tag:

- WIDTH="xxx" sets the overall width of the table, either as a percentage of the page width (WIDTH="85%") or in pixels (WIDTH=500).

- ALIGN=RIGHT can be used to align the table with the right side of the page. (ALIGN=CENTER is also in the specification but is not yet consistently implemented; to center a table, it is more effective to put the table inside <CENTER></CENTER>.)

- BORDER=xx sets the width of the border around the table to the given number of pixels (BORDER=5). When set to 0 or when BORDER is not included, there are no borders around the table or its cells.

- CELLSPACING=xx sets the number of pixels between the borders around each cell.

- CELLPPADDING=xx sets the number of pixels between the borders and the contents of each cell. This is useful for providing white space around the words in a cell.

For the <TD> and <TH> tags, the WIDTH=xxx and HEIGHT=xxx attributes can be used to suggest the preferred cell dimensions in pixels. Note, however, that these values can be overridden if other cells in the column or row require additional space.

Whenever we're setting dimensions in pixels, we need to keep in mind that different display screens have different resolutions. What looks good at 1280x1024 might become overpowering at 640x480, so it's good to test the effect at various resolutions.

In addition, browsers have now evolved to the point where nested tables are acceptable under IA-5815. Whenever doing this, though, remember to (a) keep the entire internal table within a <TD> cell in the external table, and (b) provide an alternative version for older browsers if your audience needs them. (I frequently use PDF for this purpose.)

All of these extensions are in addition to the established ALIGN and VALIGN attributes for the <TR> tag and the NOWRAP, ROWSPAN, COLSPAN, ALIGN, and VALIGN attributes for the <TD> and <TH> tags.

<UL> and <OL> List Controls

For unordered <UL> lists, HTML 3.2 includes a TYPE attribute that can be set to DISC, SQUARE, or CIRCLE in order to specify which style of bullet to use. The TYPE attribute can be used with either the <UL> tag (to affect the entire list) or the <LI> tag (to affect that item only). This attribute does not yet have the cross-vendor support required to meet the IA guidelines, but it seems likely to be adequately supported within a few months.

For ordered <OL> lists, HTML 3.2 similarly includes a TYPE attribute to control the numbering style. (See Table 2.)

Table 2. <OL> Numbering Styles from HTML 3.2

Type	Style	Type	Style
1	1, 2, 3, ...	i	i, ii, iii, ...
a	a, b, c, ...	I	I, II, III, ...
A	A, B, C, ...		

This attribute does meet the IA guidelines. As with the <UL> TYPE, the TYPE attribute can be used in either the <OL> tag (to affect the entire list) or the <LI> tag (to affect the list from that point onward).

In addition, HTML 3.2 includes two ways to control sequence numbering, both of which require integers. In the <OL> tag, the START=x attribute will set the starting number for the list to "x", while in the <LI> tag, the VALUE=x attribute will restart counting from that item onward at "x".

For More Information

I plan to discuss <HR> Horizontal Rule Controls, <IMG> Image Alignment, <DIV> Document Division Controls, and Java <APPLET>s in upcoming BITS articles. For news from the IA Project, including the current status of its HTML guidelines, please visit our home page at http://www.lanl.gov/projects/ia/ (or look under "What's New" from the Laboratory home page). For other HTML-related resources, see our Internet/WWW subject area page at http://www.lanl.gov/projects/ia-lanl/areas/int-web/ (access restricted to Laboratory machines). If you would like printed or e-mail copies of any of the IA materials, please contact me at the address given below.

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Workout with Mercury—Step by Step File Transfer Using Mercury

I. The Warm-Up

Before you can use Mercury to push and pull files across networks (partitions), you must set up a Common File System (CFS) directory on both the Open and Secure networks so that Mercury can "read from" or "write to" the directory at the time of transfer.

To set up the CFS directories, run CFS interactively from your workstation or from the Cray worker machines. If you are on your workstation, you will need to get a kerberos ticket with "kinit" to run CFS.

To run Mercury commands, you must get a kerberos ticket with "kinit" whether you are on a workstation or on Cray worker machines.

We recommend that you create separate directories for file transfer to differentiate files for transfer from those that exist strictly for storage. Once the directories are created, they can be removed or kept for future transfers.

II. Push-Ups and Pull-Ups

In the examples shown in Figures 1 and 2 on pages 15 and 16, respectively, assume that CFS subdirectories will be kept for future file transfers between Open and Secure, which means you can reuse the one-time set-up commands. These one-time set-up commands are indicated by an asterisk (*).

III. The Cool Down—Tips and Error Messages

The Mercury CFS Open-Secure file transfer service is now being operated 24 hours a day, 7 days a week. Tapes are swapped every hour on the hour between 0700 and 1800 hours. The swap times during the night will be 2000, 2200, 2400, 0200, and 0400 hours.

Green unclassified files can be stored in red secret directories in CFS. Use the CFS commands "save cl=u filename" to store the file and "modify npart=g filename" to make the file green.

Do not use password protected directories as any part of the CFS path for Mercury file transactions.

Shown below in Table 1 are some common error messages and recommended solutions. For further information on Mercury, type "man mercury" on your workstation or on the worker machine.

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Table 1. Common Error Messages and Possible Solutions

Mercury Errors	**Solution**

`mach% push /xfer/junkfile`
`No CFS files match "/xfer/junkfile".`
`Push failed: No files match filespec..`
	Check to see that the file and/or directory exist.

`mach% pull junkfile /xfer` `Pull failed: No matching requests..`	Check STATUS to see if file is ready to pull (status should return "Ready to pull").

`mach% push /secxfer/updtmp`
`/secxfer/updtmp: NO READ ACCESS FOR 900544`
`Push failed: Check file permissions/ partition..`
	Give read/write access to Mercury (cfs modify aval=900544/rw/-/secxfer).

`mach% pull udpdtmp`
`Not enough arguments.`
`push <filespec> [<filespec> ...]`
`pull [ <id> | <filespec> ] <destination>`
`mcancel [ <id> | <filespec> ]`
`status [ <id> | <filespec> ]`
`mercury help`
	Check missing arguments to the command. You must provide a CFS path destination for a pull operation.

`secmach% push /baba/testred`
`/baba/testred: NOT GREEN`
`Push failed: Check file permissions/ partition..`
	The CFS file must be in the green partition (cfs modify npart=g /baba/testred).

CFS Error	**Solution**

`secmach% cfs save /secxfer/updtmp`
`+ cfs save /secxfer/updtmp`
`**CFS0147: save /089280/secxfer/updtmp failed`
`*CL too high. Must be <= new parent's CL.`
	The node is an unclassified node in CFS. Use the "cl=u" option with the save command.

```
openmach% kinit                                    <-run kerberos initialization
...
openmach% cfs
  Open CFS interface started 96/10/24 14:13
* ? add xfer                                       <-add subdirectory for transfer in
    added /012345/xfer 10/24 14:14                       your root
* ? modify aval=900544/rw/-/s /012345/xfer         <-give read/write access to Mercury
    modified /012345/xfer 10/25 14:15
  ? d=xfer                                         <-set default directory
  ? store rel=2 myfile                             <-store file with a 2 day release date
    saved /012345/xfer/myfile (14483456 bytes) 10/24 14:32
    ? list lo=u xfer                               <-verify Mercury access
      xfer              dir         owner validation: 012345/rewaibm/-/s
         user validations:
           900544/rw/-/s
    ? end
      ended 10/24 14:45
openmach% push /012345/xfer/myfile                 <-push the open file to secure
*** Mercury: File transfer commands now available on Secure Crays
1                     : Pushing
(The '***' indicates a special message from Mercury; this is not
an error message. It will appear only once. To display again, use
the -m option in the command line.)
----------------------------------------------------------------------
Transfers occur on the hour during the day 700-1800 hours, and every
2 hours during the night 2000, 2200, 2400, 0200, and 0400 hours.
----------------------------------------------------------------------
securemach% kinit                                  <-run kerberos initialization
...
securemach% cfs                                    <-set up directory in CFS
  Secure CFS interface started 96/10/24 15:05
* ? add secxfer                                    <-add subdirectory for
    added /012345/secxfer 10/24 15:09                    transfer in your root
* ? modify aval=900544/rw/-/s /012345/secxfer      <-give read/write access
    modified /012345/secxfer 10/24 15:17                 to Mercury
  ? end
    ended 10/24 15:10
securemach% status                                 <-verify that file is ready to pull
    *** Mercury: File transfer commands now available on Secure Crays
    1                 : Ready to pull
securemach% pull myfile /012345/secxfer            <-pull the file into CFS dir
    1                 : Pull complete
securemach% cfs get /012345/secxfer/myfile         <-get the file from CFS
    got myfile:/012345/secxfer/myfile (14483456 bytes written:96/10/24 15:01) 10/24 15:29
```

Figure 1. Transferring from Open to Secure

```
securemach% kinit                                    <-run kerberos initialization
...
securemach% cfs
  Secure CFS interface started 96/10/24 15:15
* ? add secxfer                                      <-add subdirectory to default root
    added /012345/secxfer 10/24 15:16
* ? modify aval=900544/rw/-/s secxfer                <-give read/write access to Mercury
    modified /012345/secxfer 10/24 15:17
  ? d=secxfer                                        <-set the default directory
  ? store cl=u rel=2 secfile                         <-store file as unclassified
                                                          with a 2 day release date
    saved secfile:/012345/secxfer/secfile (532 bytes) 10/24 15:22
  ? modify npart=g secfile                           <-make file green
    modified /012345/secxfer/secfile 10/24 15:25
  ? list secfile                                     <- verify file is green and
                                                          unclassified
   secfile        file           size: 532 bytes
      last write: 96/10/24 15:22 by 012345
      last read:                 by
      modified:   96/10/24 15:25 by 012345
      created :   96/10/24 15:22 by 012345
     partition: Green            cl: U              #vals: 0
     stored on: disk             use: W             system: unicos
     group:                      comp: off          attrib: yes
     accesses : 0
     release date is 96/10/26
     info:
? end
  ended 10/24 15:26
securemach% push /012345/secxfer/secfile             <-push the file from secure to open
   *** Mercury: File transfer commands now available on Secure Crays
   2                          : Pushing
(The '***' indicates a special message from Mercury; this is not
an error message. It will appear only once. To display again, use the
-m option in the command line.)

----------------------------------------------------------------------
Transfers occur on the hour during the day 700-1800 hours, and every
2 hours during the night 2000, 2200, 2400, 0200, and 0400 hours.
----------------------------------------------------------------------
openmach% kinit                                      <-run kerberos initialization
...
openmach% cfs
  Open CFS interface started 96/10/24 14:13
* ? add xfer                                         <-add subdirectory for transfer
      added /012345/xfer 10/24 14:14
* ? modify aval=900544/rw/-/s xfer                   <-give read/write access to Mercury
    modified /012345/xfer 10/25 14:15
openmach% status                                     <-verify that file is ready to pull
   *** Mercury: File transfer commands now available on Secure Crays
   2                          : Ready to pull
openmach% pull secfile /012345/xfer                  <-pull the file into CFS dir
   2                          : Pull complete
openmach% cfs get /012345/xfer/secfile               <-get the file from CFS
      got secfile:/012345/xfer/secfile (532 bytes written:96/10/24 16:12) 10/25 14:27
```

Figure 2. Transferring from Secure to Open

Vendor Training Available for Maple Users

In the August issue of BITS, the Cluster Team published an article about the symbolic arithmetic package Maple. This article must have made an impact on the computing community because use of Maple has dramatically increased since then. Indeed, the Cluster Team had to purchase four additional licensees for Maple, bringing the total to five. Additionally, the Cluster Team's Maple Tutorial, located at http://saaz.lanl.gov/Maple.html, has had over 2,300 visits, making it a very popular site in the Maple net. This popularity gained the attention of Waterloo Maple, the producers of Maple.

In October, representatives of Waterloo Maple were at the Los Alamos Technology Expo. We had a chance to chat with them about new features on Maple, Maple books, and the Maple users around Los Alamos. The Waterloo reps asked if the Maple users at Los Alamos would be interested in having Waterloo come to the Lab and teach a class on Maple. I said that I would find out.

The class would be tailored to meet the needs of those who request it. Since this is still just an idea, I do not have information on cost, content, etc. However, if the demand for a class presents itself, I will definitely let the LANL community know about the details.

If you use Maple, whether on the Open Cluster or on your individual workstation, and you are interested in a Maple class taught by folks from Waterloo Maple, please let me know by filling out the Web form posted at http://saaz.lanl.gov/mapleclass.html. In that form I ask several basic questions about you and your Maple usage. If you do not have Web access, please e-mail me at cluster_consult@lanl.gov, and I will see that you receive a form. Please include your name, e-mail address, and telephone number.

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Tools for Developing Web Pages in the Windows Environment

While pioneer Web developers were required to write tedious code using the Hyper Text Markup Language (HTML), a recent flood of HTML editors featuring a Graphical User Interface (GUI) has made the job of would-be Web page designers much easier.

Incorporating a graphical front end for Web development tools allows both the novice and advanced developer to design Web pages in a fraction of the time previously required using traditional text-based HTML coding. Although these packages essentially generate the HTML code, generally the programmer never views or edits the HTML source code directly, which streamlines the entire development process.

Adobe was among the first software manufactures to publish a GUI-based Web page development tool when it began shipping PageMill version 1.0 (for the Macintosh) in late October of last year. This product generated substantial interest in the industry and was soon followed by numerous products (for both PC and Macintosh environments). It seemed that everyone, from major software producers to small start-up companies, rushed to market products that would allow Web page publishing using a GUI front end, ensuring their market share in this popular new software category.

By the second quarter of this year, virtually every major software manufacture had announced a similar product. As beta products became available, they seemed to leap-frog each other on a monthly basis with each new release rich in both features and functionality.

Although I have continued to purchase and/or download various products as they have become available, I have found the most stable and functional of these products to be Claris HomePage, Microsoft FrontPage, and Netscape Navigator 3.0. This article will focus on my review of these three products as they performed within the Windows environment. I'd like to point out that Adobe's PageMill is also considered a major player in this field, and that a Windows version of this product was recently released. PageMill remains a favorite among my Mac user associates, and because I'm primarily a Windows 95 user, I plan to become familiar with the Windows version of PageMill and review it at a later date.

Claris Home Page

Claris was one of the first products of its type that I began to experiment with. Acquiring the product from San Andreas Systems nearly a year ago, Claris began releasing beta versions of their HomePage product in approximately the second quarter of this year and began shipping their commercial version 1.0 in August. I have been using the 32-bit Windows 95 (version 1.0) of this application extensively ever since.

While releases of the beta versions were fairly buggy and frequently crashed my systems, the commercial version 1.0 corrected a majority of these shortcomings and is fairly stable. I was personally surprised by the fact that the manufacturer actually corrected nearly every bug I reported prior to its commercial release.

The well thought out on-screen buttons and menu selections are easy to follow and (for the most part) are laid out similar to other Claris products, greatly reducing the time it takes to learn this product if you are familiar with other Claris products. As you would expect, its on-line help is comprehensive and indexed to allow easy access to step-by-step instructions. Additionally, its on-line help features categories such as Planning a Web Site, Programming Basics, Libraries and Clipart, and Troubleshooting, all of which offer valuable information for the novice.

While HomePage is the only one of the three products reviewed that does not offer a Wizard to walk users through the development of their Web page, I have found that the Wizards offered by Microsoft and Netscape are generally too basic and are of very little use after becoming familiar with the products and developing the first few pages.

Among the more annoying features in all three products reviewed is that none of them allow the user to set a default directory, which means they always open (the first time) in the default directory where the application is installed. This forces users to change to their data directory each time the application is opened, or to save their data in the directory the manufacturer specifies. I was able to get around this by installing a shortcut to my data directory in the Claris default directory. The application does default to the last directory used during the session on all subsequent Open and Save requests.

I noticed intermittent substantial system performance degradation while this application was running, but I was unable to isolate the problem. This was particularly annoying if I happened to be simultaneously creating or editing graphical images (using PhotoShop) while developing Web pages. Also, I experienced an occasional intermittent system crash while using this product, so save your work as you go!

HomePage's floating windows took me a little while to get use to. While floating windows (such as the toolbar used in PhotoShop) is a standard feature in the Macintosh operating

environment, I found the default location of multiple toolbars defaulting outside of the main application window (when the application window is not maximized) to be somewhat awkward in the Windows environment. These windows may be relocated anywhere on the screen and they remember their last location (in the same session), but they do not close automatically after they are utilized and always remain in the foreground. Frequently, I find I have multiple windows opened simultaneously, such as the Link tool and the Document Properties window. With only limited screen real-estate available, I have to manually close these orphan windows to allow myself room to get to the actual Web page.

I should take a moment to warn novice developers not to forget to strike the enter key after entering a URL in the link window. Because Claris does not use the customary OK (done) button, striking enter is required to set the link. Also, do not forget (on any of the three products) to include the absolute path name http:// when linking URLs. If you omit this portion of the URL, the products will by default look for the URL under its relative path name (under the directory hosting the page containing the link) when they are uploaded. Also, be careful when using long file names. Instead of finding out the hard way, like I did, check with your service provider to determine if long file names are supported under their particular operating system. If the operating system does not support long names, it will not display your file names after uploading and you will have to rename all of your graphics images.

Perhaps the most notable HomePage feature is its table support. Its unique use of table handles allows users to resize tables on the fly, as well as modify cells in tables to overlap adjoining cells, producing tables that can contain an odd number of cells (e.g., one large cell on the left with two smaller cells to the right, all in the same table.) This feature is especially useful when placing graphics on a page with text. By placing the graphics images and text in tables (with invisible borders) the Web page designer can more easily control the layout and usability of the page. Perhaps future versions will support converting text to tables and joining existing tables (which is currently not available in any of the products reviewed).

I was disappointed that Claris did not include a number of editing features Windows users take for granted, such as the ability to use the Shift/End (or Home) key combinations to select text. I also found switching back and forth between the GUI edit screen and the HTML edit screen to be slow, and I was frustrated that the HTML edit screen always left me at the top of the page (which has been corrected in the recently released beta version 2 of this product). When editing large pages, I found it cumbersome to have to arrow down to the location I was at previously (in the GUI view) each time I flipped back and forth between the two views. HomePage is also the only product reviewed that does not offer a spell checker (which has also been corrected in version 2). Like Microsoft's FrontPage, HomePage is not WYSIWYG (what you see is what you get) and requires the use of an external viewer to see what your Web page will look like on-line before you upload your Web creation.

Claris has fixed these shortcomings and provided some enhanced features that will be available in their upcoming version 2 release. (The beta release of version 2.0 has just recently become available and may be downloaded free of charge from their Web site at www.claris.com.) All-in-all, I found this product to be feature rich, user friendly, and much more stable than Microsoft FrontPage.

Microsoft FrontPage

Of the three products I tested, Microsoft FrontPage version 1.1 was perhaps the most feature rich, though many of these features may not be utilized by the average user. Its design is conducive to developing large sites (containing many pages and links) and appears to be targeted at service providers who utilize the Windows NT operating system.

Although the advanced features of FrontPage are not reviewed here, the TCP/IP Test, Personal Web Server, and Server Administrator applications are very helpful for individuals who are bringing up their own servers under Windows NT.

Of the three products reviewed, FrontPage was by far the least stable (and crashed my machines regularly). So again, be sure to save often! Due to the problems I experienced with this product, and the fact that I had the other two products readily available, I used this product far less than Netscape or Claris.

If you use Microsoft Office, you will find the FrontPage menus and buttons to be consistent with other Microsoft products, making this product perhaps the easiest to learn for the novice with significant experience with other Microsoft products. Its extensive Wizards are numerous and very user friendly. Microsoft has indicated it intends to roll this product into its forthcoming Microsoft Office 97 suite, along with its future Operating Systems. But like HomePage, FrontPage is not WYSIWYG and for now an external viewer is required. Also, while this product allows the user to view the HTML code, an external editor is required to edit the code.

FrontPage's on-line help is robust and fashioned after the on-line help found in other Microsoft products, allowing the user to utilize the Help Setup Wizard to build on-line help with minimal database size and to maximize or customize search capabilities.

Microsoft has even included features such as FrontPage Explorer, which offers both Link and Outline views of pages created using this product. It also has a To Do List to help you track all those little things you have to remember to go back and fix when you get a second.

While its table support does not support handles (such as the ones used in Claris HomePage), its Table menu does provide access to features that allow the user to merge, split, and insert cells, and perform various row and column manipulation.

The FrontPage link editor features standard menu selections and includes the industry standard OK button, which is automatically executed when the enter key is pressed. This also closes the Link Editor window, effectively eliminating the multiple orphan windows experienced with HomePage.

Presumably, Microsoft will correct the bugs that caused the system crashes I experienced when they release version 2.0 of this product, which is currently available in the beta version and can be downloaded from Microsoft free of charge at http://www.microsoft.com/frontpage/97beta/. Be forewarned, this beta is 10-25 Mb (depending on which plug-ins are downloaded), and it may take up to 8 hours to download using a 28.8 modem connection, making this download impractical using dial-up. A CD version is available from Microsoft for a minimal charge.

I envision this product to become an industry leader some day because of the familiarity of its menus and because it has the shortest learning curve of the three products I reviewed. However, version 1.1 was so unstable I quickly became frustrated. After losing my work-in-progress multiple times, I discontinued using the product, but I look forward to future releases.

Netscape Gold

Perhaps the single most notable feature of Netscape Navigator Gold version 3.0 is its seamless integration between the editor and the browser. This is the only product reviewed that offers true WYSIWYG. Backgrounds, animated GIFs, and even Java applications (I understand) are displayed in edit mode, providing developers an on-line view of their work. This feature is the next best thing to publishing in real-time, and it incorporates a Web development application into the already familiar Netscape browser, essentially eliminating the need to purchase two products.

Of the three products I reviewed, Netscape Gold was by far the most mature product. While I rarely experienced crashes or other system problems while using this product, I must in all fairness state that the commercial release of this product was the last of the three products to ship, thereby allowing Netscape additional development time to work out problems with its product. The end result was a stable relatively bug-free, feature-rich application.

Like the other two products, Netscape Gold features a well-designed front-end with its menu layout closely resembling the menus found in the browser mode. Although the developers failed to allow users the ability to set a default data directory, its ability to pull pages down from the Web (to your local drive) for editing helps make up for the shortcoming.

Its wizard is unique in that it actually links to the Netscape home page to interview the developer and build a Web page based on selections made during the interview process. This allows Netscape (and potentially third party companies) to easily enhance future wizards without requiring developers to update their applications. Although Netscape has not taken advantage of this ability (yet), I anticipate future enhancements to their on-line wizard. Optionally, templates are also installed on your local hard drive at the time the product is installed.

Like the previous versions of Netscape's browser, each new window opened using this product appears to open a separate occurrence of the application. While each separate occurrence is accessible through the pull-down Window menu, it is also represented by an icon in the taskbar. While this feature offers one-click access to each occurrence when editing multiple pages simultaneously, the taskbar easily becomes cluttered, which makes keeping track of the icons in the taskbar a cumbersome task.

Netscape Gold allows you to edit your document while viewing it on-line. A copy of the document is saved to your local hard drive and optionally links to the same directory on the server. This copy may be saved and adjusted (at the same time the document is) to assist in remote publishing. Links to remote sites on the source document are not saved or adjusted. Images may also be saved, allowing the editing of a document on the Web in true WYSIWYG.

Like FrontPage, the Link tool features the OK (done) button, which applies the link and closes the Window. Again, the designer must include http:// when referencing absolute path names.

Editing tables is similar to the Microsoft product. While handles are not included, table properties may be modified using menu selections available under Table Properties (which is somewhat hidden). This feature is accessed by right mouse clicking on the table and then selecting the Table Properties option from the menu presented.

Like FrontPage, Netscape offers direct editing of HTML using any third party editor. However, I have been unable to actually get this feature to work. Selecting this option results in a multitude of cryptic error messages regardless of which word processor or editor I have used. Luckily, the GUI feature of this product is so efficient, I have had little need to actually modify the HTML code directly. (On the few occasions I have had a need to edit the HTML, I have utilized HomePage's editing functions).

All-in-all, I feel Netscape Navigator Gold offers the best value of the three products I reviewed. However, both Microsoft and Claris are currently offering beta versions of their second generation products, and Claris is offering a free upgrade to registered users of its version 1 product when it is released in the near future.

Conclusion

With so many products available (and in development) that offer GUI Web page publishing to end-users, it's my guess that these products will continue to gain features and leapfrog each other for an extended period of time. While all of the products currently available exhibit inherent limitations, I expect to see these products continue to be refined and, like we have seen with word processors, many if not all of the limitations will presumably be overcome.

Additionally, it seems clear that many manufactures intend to roll GUI Web development tools into their suites and operating systems, making future Web publishing (presumably) as easy as creating a document on a word processor.

All of the products featured in this article are available for evaluation from the CIC-2 Software Library as well as for purchase on the Software JIT.

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PC Team Leader / Desktop Group (CIC-2)

Keyboard Shortcuts for Windows 95

The Windows 95 GUI (Graphical User Interface) has some great advantages over the old Windows 3.1 interface. But there are numerous keyboard shortcuts that can make the use of your Window's system easier and a little faster—both for serious keyboard users and mouse addicts alike. (The only catch is to learn the shortcuts and start using them.) These shortcuts are also essential if you find yourself at a computer with a dead mouse.

What follows is a compilation of the keyboard shortcuts taken from Microsoft's documentation. (Copyright Microsoft Corporation 1996.) I left out the Cut, Copy, and Paste shortcuts, as well as the Accessibility Options keyboard shortcuts, but you can find them in the appendix of the Windows 95 manual (along with all the ones listed here). These shortcuts will also work for Windows NT 4.0.

For users with the Microsoft Natural Keyboard or a newer keyboard, such as the ones that come with Dell computers, you have the added functionality of the "Windows Key." The Windows Key is reminiscent of the Macintosh Apple Key and can speed up common tasks. The Windows Key keyboard shortcuts are listed at the end of the article. There is also an Application Key which has application-specific uses that vary among the programs that support it.

General Keyboard Shortcuts

F1—Starts Windows 95 Help.

ALT+F4—Quits a program.

CTRL+ESC—Opens the Start menu. Use the ARROW keys to select an item.

F10—Activates menu bar options.

SHIFT+F10—View the shortcut menu for the selected item.

CTRL+ESC—Displays the Start button.

ALT+TAB—Switch to another running application. Clicking the TAB key while pressing the ALT key will switch between programs.

CTRL+ALT+DEL—Brings up the Close Program dialog box that allows you to close crashed programs or reboot the computer.

CTRL+TAB/CTRL+SHIFT+TAB—Moves through the property tabs in a Properties dialog box.

To bypass the auto-run feature when you insert a CD-ROM, press down and hold the SHIFT key while you insert the CD-ROM.

To Copy a File, press down and hold the CTRL key while you drag the file to another folder.

To Create a Shortcut, press down and hold CTRL+SHIFT while you drag a file to the desktop or a folder.

To rename an object, select the object and press F2.

To find all files, select an object and press F3.

To delete an object immediately, without moving the item to the Recycle Bin, select the object and press SHIFT+DEL.

To open the property sheet of a selected object, press ALT+ENTER.

General Folder Shortcuts

F4—Selects the Go To A Different Folder box and moves down the entries in the box (if the toolbar is active in Windows Explorer).

F5—Refreshes the current window.

F6—Moves among panes in Windows Explorer.

CTRL+G: Opens the Go To Folder tool (in Windows Explorer only).

CTRL+Z—Undo the last command.

CTRL+A—Select all the items in the current window.

BACKSPACE—Switch to the parent folder.

SHIFT+CLICK Close Button—Closes the current folder plus all parent folders (if any are open).

Windows Explorer Tree Shortcuts

Numeric Keypad "*"—Expands everything under the current selection.

Numeric Keypad "+"—Expands the current selection.

Numeric Keypad "-"—Collapses the current selection.

RIGHT ARROW—Expands the current selection if it is not expanded, otherwise it goes to the first child.

LEFT ARROW—Collapses the current selection if it is expanded, otherwise it goes to the parent.

"Windows Key" Shortcuts

WINDOWS Key (by itself)—Opens the Start Menu.

WINDOWS+R—Opens the Run dialog box.

WINDOWS+M—Minimizes All Open Windows.

SHIFT+WINDOWS+M—Undoes Minimize All.

WINDOWS+E—Opens Windows Explorer.

CTRL+WINDOWS+F—Opens the Find Computer dialog box.

WINDOWS+TAB—Cycles through task bar buttons.

WINDOWS+BREAK—Opens the System Properties dialog box.

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Desktop Group (CIC-2)

Research Library Training

The LANL Research Library provides training for using its specialized databases. Training sessions begin and end at times indicated below. Classes are free but you must preregister by calling the Research Desk at 7-5809 or sending e-mail to library@lanl.gov. Special classes and orientations can also be arranged.

Date	Time	Subject Matter
12/3/96	1:00 - 1:30 p.m.	SciSearch at LANL—At your desktop!
12/5/96	1:00 - 1:30 p.m.	Grant and Funding Information
12/10/96	1:00 - 1:30 p.m.	Search Engine: Advanced Web Searching
12/11/96	11:00 - 11:30 a.m.	MELVYL (U of CA specialized databases)
12/11/96	1:00 - 1:30 p.m.	Finding Addresses and Phone Numbers on the WWW
12/12/96	1:00 - 1:30 p.m.	Commercial Information for Patent Applications
12/12/96	2:00 - 4:00 p.m.	InfoSurfing: Basic Web Searching Strategies
12/17/96	1:00 - 1:30 p.m.	SciSearch Alerting Service
12/18/96	1:00 - 1:30 p.m.	Finding Addresses and Phone Numbers on the WWW
12/19/96	2:00 - 4:00 p.m.	InfoSurfing: Basic Web Searching Strategies

Lab-Wide Systems Training

The Customer Service Group (CIC-6) offers training for users of Laboratory information systems. The CIC-6 courses offer training for a variety of personnel including property administrators, group secretaries, training coordinators, budget analysts, group leaders, or anyone needing to access training records, property records, costs, employee information, travel, chemical inventories, etc. Refer to the table below and on the following pages for specific information about courses currently offered.

Course Registration

You must have a valid ICN password before taking any of the courses shown in the table. To register for a course, call the CIC-6 Training, Development, and Coordination section at 667-9559 or access our Web page. From the LANL home page, look under "Services/Computing at LANL/Training" or enter the URL:

http://www.lanl.gov:8010/computer-information/cic6/teampage.html

Course Title	Date	Time	Cost	Course Number
Employee Development System - Basic Training (EDS I):	12/4/96	8:30 – 12:00	$350	Course #5289
	The course provides hands-on instruction to request course enrollment, use the on-line course catalog, retrieve training transcripts, and assign EDS authorities. The student will learn to create courses, add students to the courses, and generate several training reports.			
Employee Development System - Training Plans (EDS II):	12/17/96	8:30 – 12:00	$350	Course #7155
	Participants receive hands-on instruction to create and maintain training plans, assign assignment codes, and generate training plan reports. Attendees must have prior training in the Employee Development System (course #5289).			
Eudora Electronic Mail	12/11/96	1:30 – 3:30	$175	Course #9762
	This class is a hands-on class that teaches the participant how to use Eudora software to create, send, receive, and edit electronic mail messages. In addition to these procedures, the participant will learn what related settings mean and how to configure the system to meet his or her individual needs.			
Data Warehouse Basics	12/20/96	8:30 – 10:30	$175	Course #11961
	Students will receive hands-on training to generate standard reports and make quick queries from information in the data warehouse, a real-time collection of data tables from Laboratory financial, time-reporting, and personnel systems.			
Data Warehouse/ Financial Reporting	12/20/96	8:30 – 12:00	$350	Course #11960
	Students will receive hands-on training to generate standard financial reports and make on-line queries from information in the "data warehouse," a collection of data from Laboratory budgeting, accounting, and time-keeping systems.			
HTML Basics	12/5/96	1:00 – 5:00	$350	Course #11605
	Students will gain a basic understanding of HTML (Hypertext Markup Language), the language for the World Wide Web. Topics covered will be commands and standards, creating and editing documents, and authoring programs.			

Course Title	Date	Time	Cost	Course Number
HTML Tables	12/19/96	1:30 – 5:00	$350	Course #11959
	Students gain basic understanding of how to create various tables in HTML and new tags in HTML 3.0. Netscape-specific tags are also identified for clarity. Prerequisite: HTML Basics (Course #11605) or permission of the instructor.			
Introduction to the Internet: Beginning Netscape	January	1:30 – 3:30	$175	Course #10961
	Students gain basic understanding of the Internet and the World Wide Web and the use of Netscape as a browser to surf the Net. Topics covered are both Laboratory sites and open sites, along with practical uses of the Internet.			
Lotus Notes 4.0	12/17/96	1:30 – 5:00	$350	Course #9917
	This class provides hands-on instruction for Mac and PC users to use Lotus Notes software to create and send E-mail memos; fax documents; search databases; create filters, nicknames, banners, and doclinks; set defaults; and use multiple address books. In addition, participants learn how to use the memo, meetings, and discussion databases.			
On-Line Forms	January	3:30 – 5:00	$175	Course #9756
	Participants will learn to use Netscape software to access Lab-wide information and forms. Using Jetform Filler software, participants will access, complete, and print forms such as the "ICN Validation Request," "Visitor Request for Unclassified Visits to Security Areas," and "Request for Quotation."			
Purchase Card System	12/6/96	8:30 – 9:30	$175	Course #11924
	Students will learn to reconcile monthly statement of account, submit reconciled statement of account for approval, print statement of account for audit records, and delegate reconciliation authority. Prerequisite: PCS Overview. Call Ruby O' Rear at 665-4523.			
Reporting with Infomaker	12/12 – 13/96	8:30 – 5:00	$650	Course #11054
	Hands-on training to query data and develop ad hoc, or non-standard, reports from the LANL data warehouse using Infomaker software.			
Time and Effort System (GUI)	January	8:30 – 10:00	$175	Course #11018
	The student will learn how to enter attendance, amend attendance, approve attendance, and submit exception and approval reports. Time codes and associated policies will also be discussed. In addition, the student will learn how to use the Information Manager utility to view and print reports.			
Travel	12/5/96	8:30 – 11:30	$350	Course #12091
	Hands-on training to submit and approve travel requests and expenses in the new Travel System which replaces the TRIPS on-line system and the post-travel expense worksheets.			

Vendor Computer Training

The Customer Service Group (CIC-6) supports vendor training in technical computing areas such as programming languages, system administration, networking, and World Wide Web development tools. The support provided by CIC-6 can be as limited as providing the appropriate facilities for a specific group or as extensive as coordinating training functions such as system administration, vendor acquisition, EDS administration, and class facilitation. The table below lists classes that are either currently being offered or are available on request. An expanded list of classes that are potentially available can be viewed on the Internet at

http://www.lanl.gov:8010/computer-information/ComputerTraining/Vendor.html

To request registration in any vendor course or for general assistance with vendor training, please contact the CIC-Division Vendor Training Coordinator at (505) 667-9399 or send e-mail to cic6-train@lanl.gov.
*Cost per student will vary depending on the total number of students enrolled in the class.

Course Title	Date	Time	Cost	Course Number
C Programming (Beginning)	Available on Request (5 days)		$1200–$1700*	3996
	Prerequisite(s): An understanding of and useful skills in a high-level programming language. A current ICN password is required. Topics Include: Introduction and Fundamentals; Basic Semantic Constructs - Getting; Base Level I/O With C; The Preprocess-Compilation Environment; Operators, Data Types, and Storage Classes; Control Flow Constructs; Conditional Constructs; Higher-Level Data Constructs in C; File I/O; UNIX Software Tools and POSIX System Calls.			
C Programming (Advanced)	Available on Request (5 days)		$1200–$1700*	4777
	Prerequisite(s): Useful skills and experience with the C Programming. A current ICN password is required. Topics Include: Data Structures, Algorithms, and OOP; An Advanced Clinic for C ; The ANSI C Recommendation X3.159; C and ANSI C War Stories; The Data Structure and the Assessment of Algorithms; Arrays; Structures; Unions; Stacks; Queues; Linked Lists; Recursive Functions; Binary Trees; Hashing; File Organizations Using the C Runtime Library; Standard Interprocess Communication Mechanisms; and An Introduction and Overview of AT&T's C++ 3.0.			
C++ for Experienced Programmers	12/16–20/96 & 2/24–28/97	8:30–5:00	$1200–$1700*	9050
	Prerequisite(s): Excellent C Language programming skills. Topics Include: Major Differences and Additions to ANSI C; Building C++ Classes; Introduction to Text I/O with C++; Function Overloading; Single Inheritance; Virtual Functions; Multiple Inheritance; Operator Overloading; Creating, Initializing and Assigning Objects; Passing and Returning Objects; Templates, Parameterized Functions and Classes; C++Stream I/O with the File System; and C++ Course Summary.			
Managing Internet Mail: Setting Up and Troubleshooting Sendmail and DNS	Available on Request (3 days)		$1300-$1800*	
	Prerequisite(s): General knowledge of Unix system and network administration as well as experience with sending and receiving Internet electronic mail. Topics Include: Introduction to Using Electronic Mail; Theory of sendmail Operation; Understanding the sendmail.cf File; Address Rewriting Rules; Debugging sendmail; Understanding the Function of Sub-Domains in a Complex Mail Network; Setting Up Mail Sub-Domains and Mail Routing Hubs; Mail eXchanger (MX) Records and Mail Delivery in the Internet; Setting Up the Domain Naming System; Sendmail 8 - The Next Generation; Automatic Creation of sendmail.cf Files for Sendmail 8; and Verifying and Debugging sendmail.cf Files Generated by the sendmail Compiler.			

Course Title	Date	Time	Cost	Course Number
Object-Oriented Analysis and Design	1/21–24/97 & 1/27–30/97	8:30–5:00	$1200–$1700*	8981
	Prerequisite(s): Familiarity with fundamental programming concepts (data structures, types, control flow selection, iteration, etc.). Prior experience in systems or software analysis and/or development is useful but not required. Topics Include: Introduction to Object-Oriented Technology; The Object Model; OOAD Comparisons; Object-Oriented Analysis and Design I and II; Object-Oriented Analysis and Design Workshop; Object-Oriented Analysis/Design Methodologies; Object-Oriented Tools; Case Study: Texas Instruments; and Management Issues.			
Perl Programming	Available on Request (1–3 days)		$500–$700/day*	8095/8093
	Topics Include: Describes the programming language that occupies the niche between shell and C Programming; syntax and semantics; data types; operators, control flow, regular expressions, and I/O facilities; the Perl debugger.			
Perl Programming for the WWW	Available on Request (2–3 days)		$500–$700/day*	
	Prerequisite(s): Programming skills with a light background in Perl and HTML. Topics Include: On-line Resources; Server Configuration; Permissions; Setuid Issues; Tainting; Safe Perl; Data Security; OO Programming; Web Modules; CGI Programs; CGI.pm; What Went Wrong?; CGI Template; Using Forms; Form Template; Input Widgets; Submit Widgets; Reset Widgets; Sample Form; Password Fields; Text areas; Hidden Fields; Checkboxes; Radio Boxes; Popup Menus; Lisboxes; Image Maps; Random Links; libwww Modules; Sending Mail; Shopping Carts; Database Access; and Advanced Topics.			
SGI System Administration (Beginning)	Available on Request (5 days)		$1800–$2300*	11688
	Prerequisite(s): Familiarity with using Silicon Graphics IRIS workstations and system administration procedures on other open system platforms. Topics Include: The Role of the System Administrator; Set Up and Configuration of an IRIS Workstation or Server; Supporting a Group of Silicon Graphics Users; System Security Maintenance; Backups and Recoveries; Configuration of Disk Drives; System Installation and Application Software; Attaching Terminals and Printers; Modifying the system Start Up and Shut Down Sequences; Automating Administrative Procedures; and Performing Basic System Troubleshooting.			
SGI Network Administration	Available on Request (5 days)		$1800–$2300*	11690
	Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: Networking Fundamentals; Network Configuration; Network Troubleshooting; Resource Management with Network; Information Services; Domain Management with Domain Name System; Electronic Mail with Sendmail; Remote File Sharing with Network File System & Automounter; Network Performance Monitoring; and Network Security.			
SGI System Administration (Advanced)	Available on Request (5 days)		$1800–$2300*	11689
	Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: System Error Monitoring; Kernel Reconfiguration and Debugging; System Monitoring Tools; Process Management; MultiProcessor CPU Management; Memory Management and Tuning; Swap Management and Tuning; Disk Management and Tuning; XPS Filesystem Management; and System Security Concepts.			

Course Title	Date	Time	Cost	Course Number
Solaris 2.X System Administration (Beginning)	Available on Request (5 days)		$1600–$2000*	7477
	Prerequisite(s): Knowledge of Unix commands and an editor. Topics include: Custom installation of Solaris2.X server; Add peripheral devices; Use format utility to display partition information; Compress and send binary files; Change system run levels; Add startup files for additional services; Add and remove software packages; Configure terminals and modems; Administer disks and file systems; Discuss basic networking concepts; Configure NFS to support the client-server environment; Use the automounter; Add and remove diskless clients; Back up and restore file systems; Perform basic recovery and troubleshooting procedures; Configure and administer the NIS+ environment.			
Sybase Performance Design and Tuning	Available on Request (5 days)		$1800–$2100*	
	Prerequisite(s): One year of Sybase programming or DBA experience OR at least two years of experience with Oracle, Informix, Ingres, or DB2 (no Sybase). Topics Include: Fundamentals of Performance; Designing Sybase Applications for High Performance; Tuning the Sybase Server; and Maintaining and Troubleshooting for Performance.			
UNIX (Beginning)	Available on Request (5 days)		$738	5267
	Prerequisite(s): Familiarity with a UNIX workstation. Topics Include: Overview of the Workstation Environment; Getting Started; The UNIX File System; Manipulating Files; Customizing Your Environment; The C-Shell; Editing and Writing with vi; Using the Network; Discussing NFS and NIS; Using Basic System Status Commands; Startup and Shutdown Procedures; Using tar.			
Windows NT Workstation and Server	Available on Request (5 days)		$1600-$1900*	
	Prerequisite(s): This course is valuable for personnel who are evaluating or migrating to Windows NT. It benefits system and network administrators, other support personnel, programmers, and users from Windows, Unix, OS/2, or VMS backgrounds. Topics Include: Introduction to Windows NT; System Overview and Security; Network Configuration Options; Installation; Server Choices; User Administration and Security; Files and Printers; Built-in Network Support; Configuration Options; Using Setup; Data and Disk Management; The Registry; Troubleshooting; and Optimization and Performance.			
Windows 95 Support and Networking	Available on Request (5 days)		$1800–$2100*	
	Prerequisite(s): This course is valuable for PC support staff, help desk personnel, technicians, systems and network administrators, end users, and all personnel involved in evaluating, installing, configuring, or supporting Windows 95. A basic knowledge of a graphical user interface is assumed. Topics Include: Introduction and Overview; New and Improved Product Features, Comparing Windows 95; Installation and Startup; Configuration Options; Installing and Maintaining Windows 95; The Windows 95 User Interface; The Desktop, Desktop Icons; Network Resources and Security; Accessing Network Resources; Establishing Network Security; Configuration and System Architecture; Installable File System; Local and Remote System Administration; System Policies; Remote Administration; Windows 95 Networking and Remote Access; Networking Fundamentals; Integration and Connectivity; and Communications and Mail.			

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INTEGRATED COMPUTING NETWORK (ICN) VALIDATION REQUEST

To access ICN computing resources, please complete all parts of this form that apply to you, including "Special Requirements."

If you have **questions**: Call: (505) 665-1805
E-mail: validate@lanl.gov

Mail your completed application to:
ICN Password Office (PWO)
Mail Stop: B271
Los Alamos National Laboratory
Los Alamos, NM 87545

All Laboratory computers, computing systems, and their associated communication systems are for official business only. By completing this request, users agree not to misuse the ICN. The Laboratory has the responsibility and authority to perodically audit user files.

Owner Information

Z-Number (if you have one)	PWO Use Only	Name (last, first, middle initial)
LANL Group	LANL Mail Stop	Citizenship (Foreign National see "Special Requirements-Foreign National")
Phone Number	Cost Center	Program Code

Check LANL affiliation:

- ☐ LANL employee
- ☐ Contractor _____ (specify contract company)
- ☐ Consultant, VSM, associate
- ☐ External user_____ (specify employer)
- ☐ Other (specify)_____

Send password / smartcard to:

☐ Mail Stop or ☐ Mail to address indicated below

Name / Organization
Address
City, State, Zip Code

Access

Check access method and needed partitions:

Access method: ☐ ICN Password ☐ Smartcard ☐ Both

☐ **Open** partition (e.g., email systems, open machines)

☐ **Administrative** partition (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])
If you are not a Q-cleared LANL employee, see required steps in section "Special Requirements-Administrative Partition," unless you already have Administrative access with an ICN password.

☐ **Secure** partition (i.e., secure machines)
Indicate level(s) of data to be processed:
- ☐ Unclassified
- ☐ Secret

I certify this person does require secure access:

_____ _____
Manager Signature (Group Leader or above) Date

NOTE: A Q-clearance is required. All classified computing must be performed within the Secure environment.

PWO Use Only

New ☐ Change ☐	Clearance Status	Processed	Lv	Smartcard Serial #
Comments:				

Form 1646 (1/95) Supersedes previous versions (rev. 10/20).

Continue

Special Requirements

Administrative Partition

(U.S. Citizens Only) Lab-Wide Systems (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])

☐ Under 18 years of age

If you need to access Administrative systems, your group leader must provide a memo accepting responsibility for your actions and justifying your need for access. This memo is to accompany all forms taken to the security briefing (see "Contractor or Non-Q-Cleared") section below. You may not access the Secure Partition.

☐ Contractor or Non-Cleared

Phone (505) 667-9444 to obtain Access Authorization packet.

Phone (505) 667-9153 to schedule a security briefing.

Bring all forms including this ICN Validation Request to the security briefing for approval.

Security Briefing Approval Signature	Date

☐ Foreign National

Attach a copy of Form 982 (REQUEST FOR UNCLASSIFIED VISIT OR ASSIGNMENT BY A FOREIGN NATIONAL) with all approval signatures. Be sure Box #11 of Form 982 is completed. If you are not a visitor/assignee under a LANL/DOE approved Visit / Assignment Request, attach written justification from your host Division Director describing your need to access the ICN.

Authorization (required)

Print Manager Name (Group Leader or above)	Manager Z-Number	Group
Manager Signature (Group Leader or above)	**Mail Stop**	**Date**

If you are NOT a LANL employee, obtain your LANL contact's signature in addition to the contact's manager's signature.

NOTE: LANL contacts are regular Laboratory employees. Contacts are responsible for obtaining annual re-authorizations, forwarding renewals, and notifying the ICN Password Office of changes in user or contact status.

Print LANL Contact Name	Contact Z-Number	Phone Number	Group
LANL Contact Signature		**Mail Stop**	**Date**

Reader Feedback

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INDEX

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